



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/575,400

04/07/2006

Jouko Savolainen

LOYZ 2 00005

8987

27885

7590

06/19/2009

Fay Sharpe LLP

1228 Euclid Avenue, 5th Floor

The Halle Building

Cleveland, OH 44115

EXAMINER

TSAY, MARSHA M

ART UNIT

PAPER NUMBER

1656

MAIL DATE

DELIVERY MODE

06/19/2009

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/575,400	Applicant(s) SAVOLAINEN ET AL.	
	Examiner Marsha M. Tsay	Art Unit 1656	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,2,4,5,11,14-16,18-22,25,26,30,33 and 34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4,5,11,14-16,18-22,25,26,30,33 and 34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1656

This Office action is in response to Applicants' remarks received April 6, 2009.

Applicants' arguments have been fully considered and are deemed to be persuasive to overcome some of the rejections previously applied. Rejections and/or objections not reiterated from previous Office actions are hereby withdrawn.

Claims 6-10, 12-13, 17, 23-24, 27-29, 31-32 are canceled. Claims 1-2, 4-5, 11, 14-16, 18-22, 25-26, 30, 33-34 are currently under examination.

Priority: The request for priority to FINLAND 20031506, filed October 15, 2003, and FINLAND 20031508, filed October 15, 2003, is acknowledged.

Objections and Rejections

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 20-22, 25-26, 30, 33-34 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 20 and its dependent claims are drawn to a method for preparing a protein-based film comprising the steps of providing an amount of protein solution which contains unmodified proteins having disulfide bonds, contacting the unmodified proteins with a sulfite ion forming agent, and forming said protein-based film from said solution, wherein the solution has a pH of 7 or below. It is unclear if said solution has pH of 7 or below prior to film formation or whether

Art Unit: 1656

the pH is adjusted to 7 or below in order to induce protein-film formation. Therefore, it is unclear how the film is formed from the solution. Further clarification is requested.

Claim 22 recites the limitation "the interchange reaction" in the claim. There is insufficient antecedent basis for this limitation in the claim and its parent claim.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4-5, 20-22, 26 are rejected under 35 U.S.C. 102(e) as being anticipated by Savolainen (US 6797810).

The applied reference has one common inventor with the instant application. Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

For examination purposes, claim 1 has been interpreted as a protein film comprising a protein network formed by disulfide bonds between modified proteins having free sulfhydryl groups and unmodified proteins having disulfide bonds. Claim 20 has been interpreted as a method for preparing a protein film comprising: a) providing a protein solution containing

Art Unit: 1656

unmodified proteins having disulfide bonds, b) contacting the unmodified proteins with a sulfite ion forming agent, c) lowering the solution to a pH 7 or below so that a protein film is formed.

Savolainen discloses a method comprising a) providing a whey protein solution, b) contacting said whey protein solution with sulfite ions, and c) adjusting the pH of said solution to a pH below 7 (col. 10-11 example 1, 4, col. 13-14; claims 20-22, 26). While Savolainen does not explicitly teach a protein film being formed, this limitation would inherently occur since Savolainen teaches the same active steps as the instant method, so one of ordinary skill would expect protein nets to form in suspension in the solution at least (see also col. 7 lines 5-25; claims 1-2, 4-5). Further, regarding the limitation of claim 1, i.e. having about 2 to about 4 free sulfhydryl groups per protein, this limitation would also be anticipated by Savolainen since the instant film is formed by the same active steps as Savolainen.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 25 is rejected under 35 U.S.C. 103(a) as being unpatentable over Savolainen (US 6797810). The teachings of Savolainen are outlined above. Savolainen discloses the sulfite amount is 0.02-0.2 M (col. 7 lines 55-57). Savolainen does not explicitly teach the amount of sulfite used is 0.01-0.06% (w/v).

However, it would have been obvious to one of ordinary skill in the art to modify the amount of sulfite used in order to obtain proteins with various degrees of modification that will

Art Unit: 1656

result in said proteins having the appropriate functional properties (col. 7 lines 5-25; claim 25). Also, generally, differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955); see also *Peterson*, 315 F.3d at 1330, 65 USPQ2d at 1382 ("The normal desire of scientists or artisans to improve upon what is already generally known provides the motivation to determine where in a disclosed set of percentage ranges is the optimum combination of percentages.").

Claims 11, 14-16, 18-19, 30, 33-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Savolainen (US 6797810) in view of Krochta et al. (US 5543164; previously cited). The teachings of Savolainen are outlined above. Savolainen discloses free sulfhydryl groups in the protein end product can be made use for their functional properties, i.e. gelation, foaming, protein net for gel formation (col. 7 lines 5-25). Savolainen does not explicitly disclose formation of the protein net on a substance.

Krochta et al. discloses that a protein-based film made from whey proteins can be formed on a food item (col. 5 lines 55-60), and can be formed around a lipid (col. 6 lines 7-10). The protein-based film can be formed without heat treatment (col. 5 line 25).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to form the whey protein net of Savolainen on a food item, edible product, and/or any other type of appropriate product as suggested by Krochta et al. because Krochta et al. suggest

Art Unit: 1656

that an edible protein-based coating can be used to coat foodstuff to make it more appealing or to protect it from moisture (claims 11, 14-16, 18-19, 30, 33-34) and Savolainen discloses a protein net can have functional properties.

Applicant's arguments, with respect to the previous 103(a) rejections have been fully considered and are persuasive. The previous 103(a) rejections have been withdrawn.

However, the instant claims are believed to be anticipated by Savolainen as noted above and unpatentable over Savolainen in view of Krochta et al., also as noted above.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marsha M. Tsay whose telephone number is (571)272-2938. The examiner can normally be reached on M-F, 9:00am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Andrew Wang can be reached on 571-272-0811. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR

Art Unit: 1656

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Maryam Monshipouri/

Primary Examiner, Art Unit 1656

June 18, 2009